

CLAIMS

What is claimed is:

1. A combustible fuel comprising:

- (A) an alcohol component in the range of about 15% to about 85% by weight;
- (B) a naphtha component in the range of about 12% to about 55% by weight;
- (C) an aliphatic ether component in the range of about 3% to 30% by weight.

2. The combustible fuel of claim 1 wherein said alcohol component is one or more alcohols of the formula ROH and where R is selected from the group consisting essentially of straight-chained alkyl of from 1 to 10 carbons, branched-alkyl of from 1 to 10 carbons, and cyclic alkyl of from 1 to 10 carbons.

3. The combustible fuel of claim 1 wherein said alcohol component is selected from the group consisting essentially of methanol ethanol, 1-propanol, 2-propanol, butyl alcohol, isobutyl alcohol, tertiary-butyl alcohol, glycerol, and mixtures thereof.

4. The combustible fuel of claim 1 wherein R of said alcohol formula is alkyl of six or fewer carbons.

5. The combustible fuel of claim 1 wherein said alcohol component comprises a mixture of ethanol and isobutanol.

6. The combustible fuel of claim 1 wherein said alcohol component is ethanol.

7. The combustible fuel of claim 1 wherein said naphtha component is a mixture of hydrocarbons distilled from petroleum.

8. The combustible fuel of claim 1 wherein said aliphatic ether component is one or more ethers of the formula R'OR'' and where R' is selected from the group consisting essentially of straight-chained alkyl of from 1 to 12 carbons, branched-alkyl of from 1 to 12 carbons, and cyclic alkyl of from 1 to 12 carbons, where R'' is selected from the group consisting essentially of straight-chained alkyl of from 1 to 12 carbons, branched-

alkyl of from 1 to 12 carbons, and cyclic alkyl of from 1 to 12 carbons, and where R' and R'' of said ether formula are either identical or different moieties.

9. The combustible fuel of claim 1 wherein said aliphatic ether component is selected from the group consisting essentially of methyl ether, ethyl ether, propyl ether, butyl ether, isopropyl ether, *t*-butyl ether, pentyl ether, *sec*-butyl ether, neo-hexyl ether, and mixtures thereof.

10. The combustible fuel of claim 1 wherein said aliphatic ether component is selected from the group consisting essentially of methyl-*t*-butyl ether, ethyl-*t*-butyl ether, *t*-amylmethyl ether, and mixtures thereof.

11. The combustible fuel of claim 1 wherein said naphtha component is in the range of 35% to 50% by weight.

12. The combustible fuel of claim 1 wherein said naphtha component is in the range of 35% to 40% by weight.

13. The combustible fuel of claim 1 wherein said naphtha component is in the range of 43% to 48% by weight.

14. The combustible fuel of claim 1 wherein said alcohol component is in the range of 35% to 55% by weight.

15. The combustible fuel of claim 1 wherein said alcohol component is in the range of 60% to 65% by weight.

16. The combustible fuel of claim 1 wherein said ether component is in the range of 3% to 30% by weight.

17. The combustible fuel of claim 1 wherein said alcohol component is in the range of 5% to 20% by weight.

18. The combustible fuel of claim 1 with a Reid Vapor Pressure less than or equal to about 15 psi.

19. The combustible fuel of claim 1 further comprising additives selected from the group consisting essentially of corrosion inhibitors, surfactants, detergents, metal deactivators, antioxidants, fuel stabilizers, and anti-freeze components.

20. The combustible fuel of claim 1 wherein said naphtha component is in the range of 40% to 49% by weight, said alcohol component is 20% to 45% by weight ethanol and 0.1% to 20% by weight isopropanol or isobutanol, and said ether component is 0.1 to 10% by weight methyl-*t*-butyl ether.

21. The combustible fuel of claim 1 wherein said naphtha component is in the range of 40% to 49% by weight, said alcohol component is 20% to 45% by weight ethanol and 0.1% to 20% by weight isopropanol or isobutanol, and said ether component is 0.1% to 10% by weight ethyl-*t*-butyl ether.

22. The combustible fuel of claim 1 wherein said alcohol component is 25% ethanol and 20% isobutanol, said naphtha component is 45% and said ether component is 10% methyl-*t*-butyl ether.

23. The combustible fuel of claim 1 wherein said alcohol component is 35.2% ethanol and 13.5% isobutanol, said naphtha component is 43% and said ether component is 6.5% methyl-*t*-butyl ether.

24. The combustible fuel of claim 1 wherein said alcohol component is 20% ethanol and 20% isobutanol, said naphtha component is 40% and said ether component is 20% methyl-*t*-butyl ether.

25. The combustible fuel of claim 1 wherein said alcohol component is 20% ethanol and 20% isobutanol, said naphtha component is 40% and said ether component is 20% ethyl-*t*-butyl ether.

26. The combustible fuel of claim 1 wherein said alcohol component is 40% ethanol and 15% isobutanol, said naphtha component is 40% and said ether component is 5% methyl-*t*-butyl ether.

27. The combustible fuel of claim 1 wherein said alcohol component is 40% ethanol and 15% isobutanol, said naphtha component is 40% and said ether component is 5% ethyl-*t*-butyl ether.

28. The combustible fuel of claim 1 wherein said alcohol component is 35% ethanol, said naphtha component is 45% and said ether component is 20% methyl-*t*-butyl ether.

29. The combustible fuel of claim 1 wherein said alcohol component is 38% ethanol and 4% isobutanol, said naphtha component is 48% and said ether component is 10% methyl-*t*-butyl ether.

30. The combustible fuel of claim 1 wherein said alcohol component is 37% ethanol and 13.5% isobutanol, said naphtha component is 43% and said ether component is 6.5% methyl-*t*-butyl ether.

31. The combustible fuel of claim 1 wherein said alcohol component is 39.8% ethanol and 4.2% isobutanol, said naphtha component is 46.3% and said ether component is 9.7% methyl-*t*-butyl ether.

32. The combustible fuel of claim 1 wherein said alcohol component is 39.4% ethanol and 6.2% isobutanol, said naphtha component is 45.5% and said ether component is 8.9% methyl-*t*-butyl ether.

33. A combustible fuel comprising:

- (A) an alcohol component in the range of about 55% to about 70% by weight;
- (B) a naphtha component in the range of about 30% to about 45% by weight.

34. The combustible fuel of claim 33 wherein said alcohol component is one or more alcohols of the formula ROH and where R is selected from the group consisting essentially of straight-chained alkyl of from 1 to 10 carbons, branched-alkyl of from 1 to 10 carbons, and cyclic alkyl of from 1 to 10 carbons.

35. The combustible fuel of claim 33 wherein said alcohol component is selected from the group consisting essentially of methanol ethanol, 1-propanol, 2-propanol, butyl alcohol, isobutyl alcohol, tertiary-butyl alcohol, glycerol, and mixtures thereof.

36. The combustible fuel of claim 33 wherein R of said alcohol formula is alkyl of six or fewer carbons.
37. The combustible fuel of claim 33 wherein said alcohol component comprises a mixture of ethanol and isobutanol.
38. The combustible fuel of claim 33 wherein said alcohol component is ethanol.
39. The combustible fuel of claim 33 wherein said naphtha component is a mixture of hydrocarbons distilled from petroleum.
40. The combustible fuel of claim 33 wherein said naphtha component is in the range of 35% to 40% by weight.
41. The combustible fuel of claim 33 wherein said naphtha component is in the range of 43% to 45% by weight.
42. The combustible fuel of claim 33 wherein said alcohol component is in the range of 60% to 65% by weight.
43. The combustible fuel of claim 33 with a Reid Vapor Pressure less than or equal to about 15 psi.
44. The combustible fuel of claim 33 further comprising additives selected from the group consisting essentially of corrosion inhibitors, surfactants, detergents, metal deactivators, antioxidants, fuel stabilizers, and anti-freeze components.
45. The combustible fuel of claim 33 wherein said alcohol component is 60% ethanol, said naphtha component is 40%.
46. The combustible fuel of claim 33 wherein said alcohol component is 45% ethanol and 20% isobutanol, said naphtha component is 35%.
47. A combustible fuel comprising:
- (A) an alcohol component in the range of about 30% to about 60% by weight;
 - (B) a naphtha component in the range of about 40% to about 55% by weight;

(C) an aliphatic ether component in the range of about 1% to 25% by weight.

48. The combustible fuel of claim 47 wherein said alcohol component is one or more alcohols of the formula ROH and where R is selected from the group consisting essentially of straight-chained alkyl of from 1 to 10 carbons, branched-alkyl of from 1 to 10 carbons, and cyclic alkyl of from 1 to 10 carbons.

49. The combustible fuel of claim 47 wherein said alcohol component is selected from the group consisting essentially of methanol ethanol, 1-propanol, 2-propanol, butyl alcohol, isobutyl alcohol, tertiary-butyl alcohol, glycerol, and mixtures thereof.

50. The combustible fuel of claim 47 wherein R of said alcohol formula is alkyl of six or fewer carbons.

51. The combustible fuel of claim 47 wherein said alcohol component comprises a mixture of ethanol and isobutanol.

52. The combustible fuel of claim 47 wherein said alcohol component is ethanol.

53. The combustible fuel of claim 47 wherein said naphtha component is a mixture of hydrocarbons distilled from petroleum.

54. The combustible fuel of claim 47 wherein said aliphatic ether component is one or more ethers of the formula R'OR'' and where R' is selected from the group consisting essentially of straight-chained alkyl of from 1 to 12 carbons, branched-alkyl of from 1 to 12 carbons, and cyclic alkyl of from 1 to 12 carbons, where R'' is selected from the group consisting essentially of straight-chained alkyl of from 1 to 12 carbons, branched-alkyl of from 1 to 12 carbons, and cyclic alkyl of from 1 to 12 carbons, and where R' and R'' of said ether formula may be identical or different moieties.

55. The combustible fuel of claim 47 wherein said aliphatic ether component is selected from the group consisting essentially of methyl ether, ethyl ether, propyl ether, butyl ether, isopropyl ether, *t*-butyl ether, pentyl ether, *sec*-butyl ether, neo-hexyl ether, and mixtures thereof.

56. The combustible fuel of claim 47 wherein said aliphatic ether component is selected from the group consisting essentially of methyl-*t*-butyl ether, ethyl-*t*-butyl ether, *t*-amylmethyl ether, and mixtures thereof.

57. The combustible fuel of claim 47 wherein said naphtha component is in the range of 43% to 48% by weight.

58. The combustible fuel of claim 47 wherein said alcohol component is in the range of 35% to 55% by weight.

59. The combustible fuel of claim 47 with a Reid Vapor Pressure less than or equal to about 15 psi.

60. The combustible fuel of claim 47 further comprising additives selected from the group consisting essentially of corrosion inhibitors, surfactants, detergents, metal deactivators, antioxidants, fuel stabilizers, and anti-freeze components.

61. The combustible fuel of claim 47 wherein said naphtha component is in the range of 40% to 49% by weight, said alcohol component is 20% to 45% by weight ethanol and 0.1% to 20% by weight isopropanol or isobutanol, and said ether component is 1% to 10% by weight methyl-*t*-butyl ether.

62. The combustible fuel of claim 47 wherein said naphtha component is in the range of 40% to 49% by weight, said alcohol component is 20% to 45% by weight ethanol and 0.1% to 20% by weight isopropanol or isobutanol, and said ether component is 1% to 10% by weight ethyl-*t*-butyl ether.

63. The combustible fuel of claim 47 wherein said alcohol component is 25% ethanol and 20% isobutanol, said naphtha component is 45% and said ether component is 10% methyl-*t*-butyl ether.

64. The combustible fuel of claim 47 wherein said alcohol component is 35.2% ethanol and 13.5% isobutanol, said naphtha component is 43% and said ether component is 6.5% methyl-*t*-butyl ether.

65. The combustible fuel of claim 47 wherein said alcohol component is 20% ethanol and 20% isobutanol, said naphtha component is 40% and said ether component is 20% methyl-*t*-butyl ether.

66. The combustible fuel of claim 47 wherein said alcohol component is 20% ethanol and 20% isobutanol, said naphtha component is 40% and said ether component is 20% ethyl-*t*-butyl ether.

67. The combustible fuel of claim 47 wherein said alcohol component is 40% ethanol and 15% isobutanol, said naphtha component is 40% and said ether component is 5% methyl-*t*-butyl ether.

68. The combustible fuel of claim 47 wherein said alcohol component is 40% ethanol and 15% isobutanol, said naphtha component is 40% and said ether component is 5% ethyl-*t*-butyl ether.

69. The combustible fuel of claim 47 wherein said alcohol component is 35% ethanol, said naphtha component is 45% and said ether component is 20% methyl-*t*-butyl ether.

70. The combustible fuel of claim 47 wherein said alcohol component is 38% ethanol and 4% isobutanol, said naphtha component is 48% and said ether component is 10% methyl-*t*-butyl ether.

71. The combustible fuel of claim 47 wherein said alcohol component is 37% ethanol and 13.5% isobutanol, said naphtha component is 43% and said ether component is 6.5% methyl-*t*-butyl ether.

72. The combustible fuel of claim 47 wherein said alcohol component is 39.8% ethanol and 4.2% isobutanol, said naphtha component is 46.3% and said ether component is 9.7% methyl-*t*-butyl ether.

73. The combustible fuel of claim 47 wherein said alcohol component is 39.4% ethanol and 6.2% isobutanol, said naphtha component is 45.5% and said ether component is 8.9% methyl-*t*-butyl ether.

74. A method of manufacturing a combustible fuel comprising the steps of:
obtaining an alcohol feed;
obtaining a naphtha feed;
obtaining an ether feed;
blending said alcohol feed with said naphtha feed and said ether feed by turbulent mixing.

75. A method of manufacturing a combustible fuel comprising the steps of:
obtaining an alcohol feed;
obtaining a naphtha feed;
blending said alcohol feed with said naphtha feed by turbulent mixing.

76. A automobile fuel comprising:
(A) an alcohol component;
(B) a naphtha component;
(C) an aliphatic ether component.